HIV/AIDS Community Health Information System

Christopher L. Fulcher, PhD[1,2,3], Catherine E. Kaukinen, PhD[4]

[1]Department of Health Management and Informatics, [2]Harry S Truman School of Public Affairs,
[3]Community Informatics Resource Center, University of Missouri, Columbia, Missouri
[4]Bowling Green State University, Bowling Green, Ohio

Efforts have been made by policy makers, researchers and healthcare providers to identify, reduce and ultimately eliminate health disparities (U.S. Department of Health and Human Services, 2000), yet inequities in access to preventive medicine and healthcare continue to be an important concern. Given changes in the faces of AIDS over the last decade, it is crucial that these disparities in health and access to healthcare are addressed.

Information and communications technologies (ICT) are increasingly viewed as strategic resources for managing health care resources. Information science, coupled with geographic information systems (GIS), data visualization, expert systems, and simulation modeling, are the tools used to address health policy options. GIS permits an examination of the geographic and spatial distribution of health services across neighborhoods and offer an opportunity to explore the link between service accessibility, utilization and the economic inequality and racial composition of neighborhoods. Geographical databases allow for the mapping of healthcare services, to examine whether they are equitably distributed and whether the services provided are appropriate for the population of the local area.

An Internet-based GIS was developed using ESRI's Arc Internet Map Server (Arc IMS) to provide users with a suite of tools to interact with geographic data and conduct spatial analyses related to the characteristics that promote or impede the provision of HIV-related services. Internet Mapping allows those engaged in local decision-making to: (1) geographically visualize information via the Internet; (2) Assess the relationship between the distribution of HIV services and spatially referenced socio-economic data; and (3) generate "what if" scenarios" that may direct the allocation of healthcare resources.

The system enables HIV service providers, and policy makers to analyze the location and accessibility of HIV-related services for Chicago. Specifically, HIV service providers could identify gaps in service provision and barriers to providing care (improving the quality of support for those who are HIV-infected); and policy makers could assess the impact of the location of healthcare resources on the quality, access, and use of health services. This allows for an assessment of the quality of healthcare available to vulnerable populations, while informing policy on the future allocation of healthcare resources. This includes populations whose vulnerability is the result of race and economic status, as well as the neighborhood in which they live.

While rates of HIV infection for Whites have declined over the last decade, minority populations represent the greatest increase in new cases of HIV infection (Health Resources and Services Administration, 1999; Chicago Department of Public Health, 2000). For example, while racial and ethnic minorities represent 27 percent of the nation's population, they account for 66 percent of new AIDS cases (Health Resources and Services Administration, 1999). Chicago and other large cities have been particularly hard hit by the AIDS epidemic. Where African Americans make up 26 percent of Cook County (U.S. Bureau of the Census, 2000), African American men comprise 53 percent of the men with AIDS, while African American women make up 72 percent of the women with AIDS.

The data incorporated into the Chicago Internet Mapping Website includes the compilation of all HIV service organizations. Specifically, 772 HIV service providers were geocoded and mapped for Chicago's 77 community areas. The Test Positive Awareness Network (TPAN) in Chicago generously provided HIV service directories to the researchers. A large number of HIV service providers were derived from electronic versions of TPAN's 2002 Chicago Area HIV Services Directory. For example, TPAN's directory includes a total of 377 HIV service providers, and 147 HIV professionals. The TPAN directory contains information by service category (i.e., Case Management, Dental, Housing Placement, Testing and Counseling, etc.) and for each service provider – by service category - on fees (i.e., free, sliding scale, private insurance, etc.), and population served (i.e., women, men, and youth, etc.). This research was supported in part by NLM's Biomedical and Health Informatics Research Training grant 2-T15-LM07089-11.